	Application No.	Applicant(s)
Notice of Allowability	09/848,411	JESKE ET AL.
	Examiner	Art Unit	
	Jason M. Perilla	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed July 17, 2006*.

2. ☒ The allowed claim(s) is/are *claims 1-7, 10, 13-15, 18, 20, 21, 23, and 24 renumbered respectively as claims 1-16*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 20060927.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20060927 .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

1.   Claims 1-18, 20, 21, 23 and 24 are pending in the instant application.

2.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with David Cho on September 28, 2006.

The application has been amended as follows:

3.   In the claims, claims 8, 9, 11, 12, 16, and 17 are canceled and the following

versions of claims 1-3, 5, 7, 10, 13, 14, 15 and 18 replace all prior versions in their

entirety:

1.   A method of generating ~~estimating~~ a signal-to-interference+noise ratio (SINR) estimate for the adaptation of data communication rates among users ~~having a plurality of signals~~, comprising:
        generating ~~at least two~~ initial SINR estimates for each of ~~the~~ a plurality of signals based on a mean of a plurality of samples of the plurality of signals and a sample variance estimate of the plurality of samples of the plurality of signals;
        scaling the ~~at least two~~ initial SINR estimates; ~~and~~
        translating the scaled SINR estimates to generate the SINR estimate; and
        utilizing the generated SINR estimate to adapt data communication rates among users,
        wherein the translating step translates the scaled SINR estimates based on a number of the plurality of samples.

2. The method of claim 1, wherein the generating step generates the ~~at least two~~ initial SINR estimates for each of the plurality of signals based on at least two sample variance estimates.

3. The method of claim 2, wherein the generating step generates a smoothed sampled variance estimate based on ~~the~~ at least two sample variance estimates, and generates the ~~at least two~~ initial SINR estimates for each of the plurality of signals based on the smoothed sample variance estimate.

5. The method of claim 4, wherein the scaling step scales the ~~at least two~~ initial SINR estimates based on the smoothing factor.

7. The method of claim 5, wherein the scaling step scales the ~~at least two~~ initial SINR estimates based on the following expression:

$$\widetilde{\Theta} = \frac{\eta - 2}{\eta} \, \hat{\Theta}$$

where $\widetilde{\Theta}$ = scaled SINR estimate,

$\hat{\Theta}$ = initial SINR estimate, and

$\eta = \dfrac{(N-1)(2-r)}{r}$ where N = a number of the plurality of samples and r = smoothing factor.

10. The method of claim 4, wherein the scaling step scales the scaled SINR estimates based on ~~a~~ the number ~~N~~ of the plurality of samples.

13. The method of claim 1, wherein the plurality of samples ~~are~~ include pilot symbol samples.

14. The method of claim 1, wherein the plurality of samples ~~are~~ include data symbol samples.

15. A method of generating ~~estimating~~ a signal-to-interference+noise ratio (SINR) estimate for the adaptation of data communication rates among users, comprising:

generating a first initial SINR estimate based on a mean of a plurality of pilot symbol samples and an sample variance estimate of the plurality of pilot symbol samples;

scaling the first initial SINR estimate;

translating the first scaled SINR estimate;

generating a second initial SINR estimate based on a mean of a plurality of data symbol samples and an sample variance estimate of the plurality of data symbol samples;

scaling the second initial SINR estimate;

translating the second scaled SINR estimate; ~~and~~

combining the first and second ~~scaled~~ translated estimates to ~~produce a composite SINR estimate~~ generate the SINR estimate; and

utilizing the generated SINR estimate to adapt data communication rates among users,

wherein the scaling and translating are determined based on a bias in the first and second scaled estimates.

18. A method of generating ~~estimating~~ a signal-to-interference+noise ratio (SINR) for the adaptation of data communication rates among users, comprising:

generating a first SINR estimate based on received pilot symbol samples;

generating a second SINR estimate based on received data symbol samples; and

combining the first and second SINR estimates to produce a composite SINR estimate,

wherein combining the first and second SINR estimates includes:

weighting the first SINR estimate according to a first weight;

weighting the second SINR estimate according to a second weight; ~~and~~

combining the first and second weighted SINR estimates to generate the SINR estimate; and

utilizing the generated SINR estimate to adapt data communication rates among users,

~~wherein the first and second weights depend on an initial estimate of the SINR~~

wherein the first weight depends on an initial estimate of the first SINR estimate and the second weight depends on an initial estimate of the second SINR estimate.

Claims 8, 9, 11, 12, 16 and 17 are cancelled.

Claims 1-7, 10, 13-15, 18, 20, 21, 23, and 24 are renumbered respectively as claims 1-16, and the claim dependency is renumbered accordingly.

4.   In the specification, amendments are made as follows:

On page 2 of the specification, in the "BRIEF DESCRIPTION OF THE DRAWINGS", the following paragraph is inserted at the end:

Figure 5 illustrates a flow diagram representing a method of implementing an embodiment of the present invention.

On page 9 of the specification, the following paragraph is inserted at the top of the page before the paragraph beginning with "The invention being thus described,":

Figure 5 illustrates a flow diagram representing an example embodiment of the present invention. In steps 500 and 502, initial SINR estimates are generated from received data and pilot samples, respectively. In steps 510 and 512, the initial SINR estimates are scaled, and, in steps 520 and 522 the scaled SINR estimates are translated. In step 530, the scaled and translated initial pilot and data SINR estimates are combined. In step 540, the generated SINR estimate from the combining step is utilized for the adaptation of communication rates among users.

5.   In the drawings, the following changes have been approved by the examiner and agreed upon by applicant:

The addition of the attached new figure 5.

In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

6.   The submission of a formal drawing sheet for figure 5 in compliance with 37 CFR 1.121(d) is required in this application. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Allowable Subject Matter

7.   Claims 1-7, 10, 13-15, 18, 20, 21, 23, and 24 renumbered respectively as claims 1-16 are allowed.

8.   The following is an examiner's statement of reasons for allowance:

Claims 1-7, 10, 13-15, 18, 20, 21, 23, and 24 renumbered respectively as claims 1-16 are allowable over the prior art of record because the prior art of record does not disclose scaling and translating each of a plurality of initial SINR estimates wherein the scaling and translating of the initial SINR estimates is, at least in part, dependent upon a factor of the data samples utilized to determine the SINR estimates.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-

3055. The examiner can normally be reached on M-F 8-5 EST.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason M. Perilla
September 27, 2006

jmp

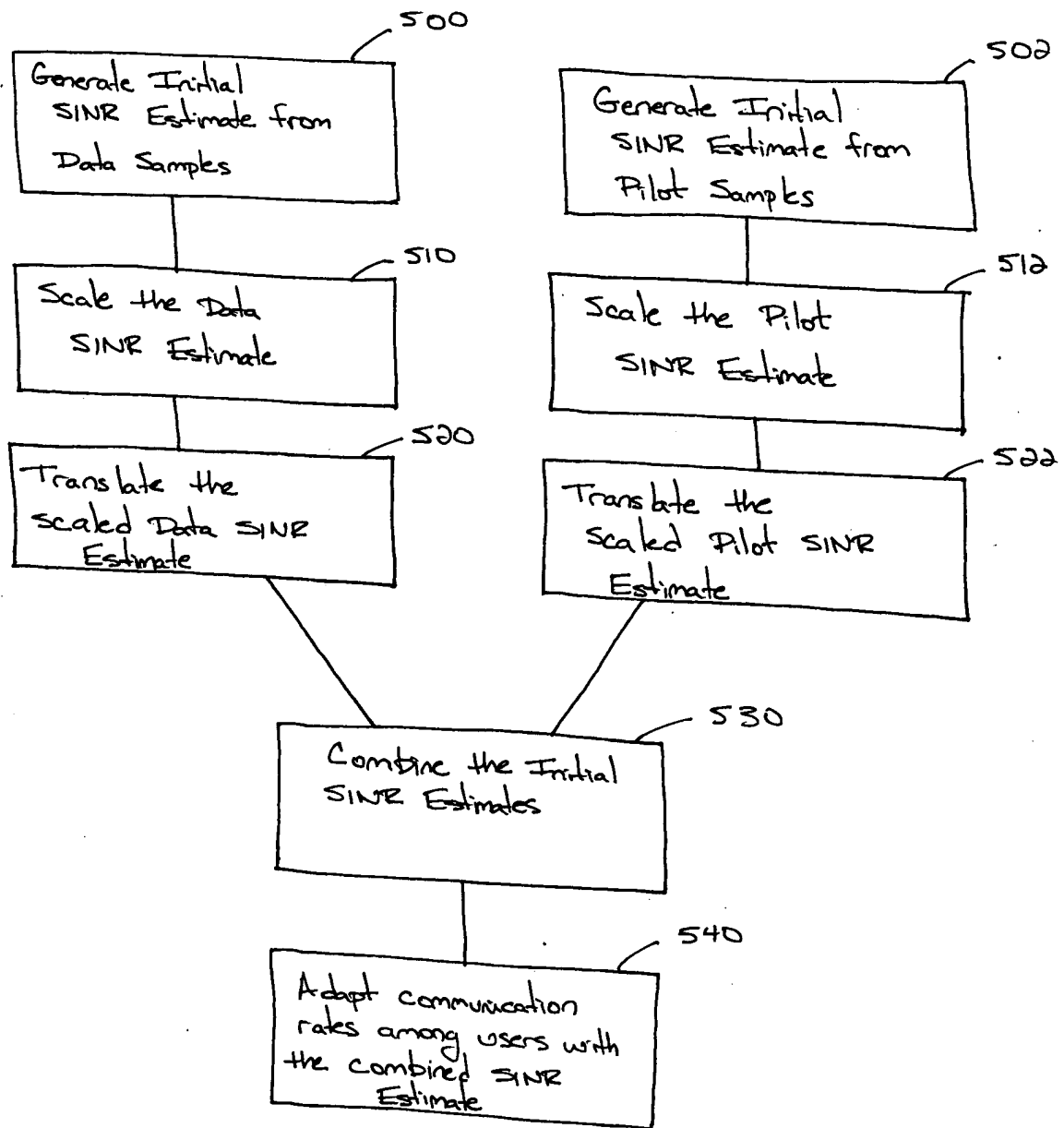CHIEH M. FAN
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT

Generate Initial
SINR Estimate from
Data Samples
— 500

Generate Initial
SINR Estimate from
Pilot Samples
— 502

Scale the Data
SINR Estimate
— 510

Scale the Pilot
SINR Estimate
— 512

Translate the
scaled Data SINR
Estimate
— 520

Translate the
scaled Pilot SINR
Estimate
— 522

Combine the Initial
SINR Estimates
— 530

Adapt communication
rates among users with
the combined SINR
Estimate
— 540

Fig. 5